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HARDWOODS - THE BIGGER, THE BETTER:

HEMLOCKS - JUST GET BIGGER . . . .

By Allen W. Bratton

Sawmill men bid high for large hardwood logs; they watch with keen satisfaction as the head saw rips off the wide, clear boards. They realize that in hardwoods the larger the diameter of the log--at least up to 22 inches or so--the greater the proportion of high grade lumber. It is not so well known, however, that in hemlock the reverse is often true: the larger hemlock logs yield smaller proportions of high-quality lumber.

Since hardwoods and hemlock are used for purposes demanding quite different characteristics, the grading of the lumber differs radically. Hardwood lumber is for the most part graded for clearness (appearance), as judged by the proportion of each board which can be worked into large clear pieces (cuttings). Hemlock is generally graded for strength, the quality being judged by the amount of defect which would weaken a piece. There are exceptions in both. Oak is an outstanding example of a hardwood used for its strength qualities, as in boat construction; and 1-inch hemlock boards are frequently used on the basis of appearance.

This difference between hardwoods and hemlock accounts to a large degree for the different effect of log diameter on lumber values. Center rot, wind shake, and unsound knots take a toll of the larger hemlocks, especially the over-mature trees. These are strength-reducing defects; and although the greater width and thickness of the lumber obtainable from larger logs goes far to compensate for grade losses, the effect of greater size is not sufficient to prevent a downward trend in hemlock lumber value as log diameter increases. On the other hand, the smaller hemlock logs are freer from these defects; and though they may contain many knots, these are usually sound and tight and do not affect grading for strength to the

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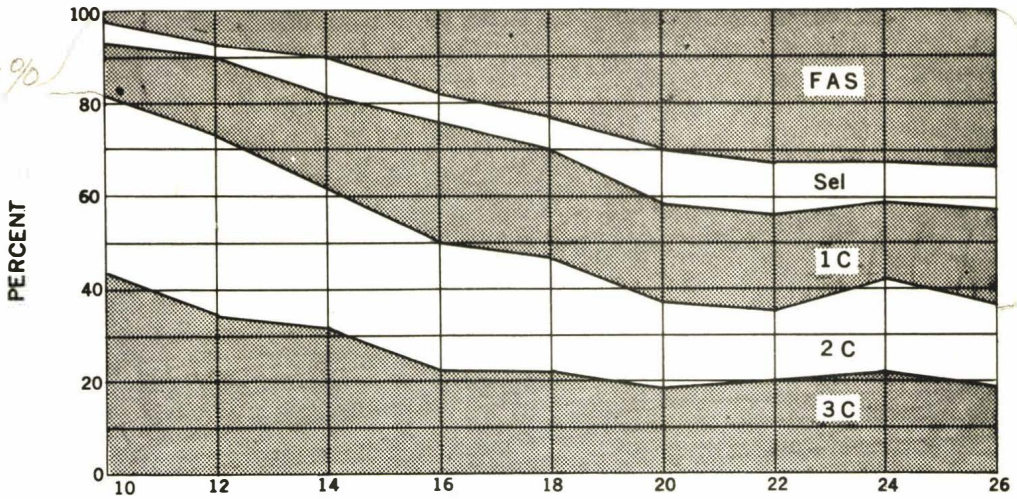
same degree that knots affect the grading of hardwoods for clearness. The value curve per thousand board feet reflects these facts. It also suggests that hardwoods can be profitably left to grow larger, even when volume increase has slowed, since an increase in quality can be expected at a rate which gives a satisfactory return on the investment. But hemlock can be left to grow only so long as the volume increase is satisfactory.

These data are based solely on the quality and value of the lumber. Further study is needed to determine the precise effect of costs. Logging and milling costs are higher, per thousand board feet, for small logs. Furthermore, carrying costs such as property taxes and interest, which accrue from year to year, must also be taken into account in determining how long a tree, especially a hemlock, should be allowed to stand.

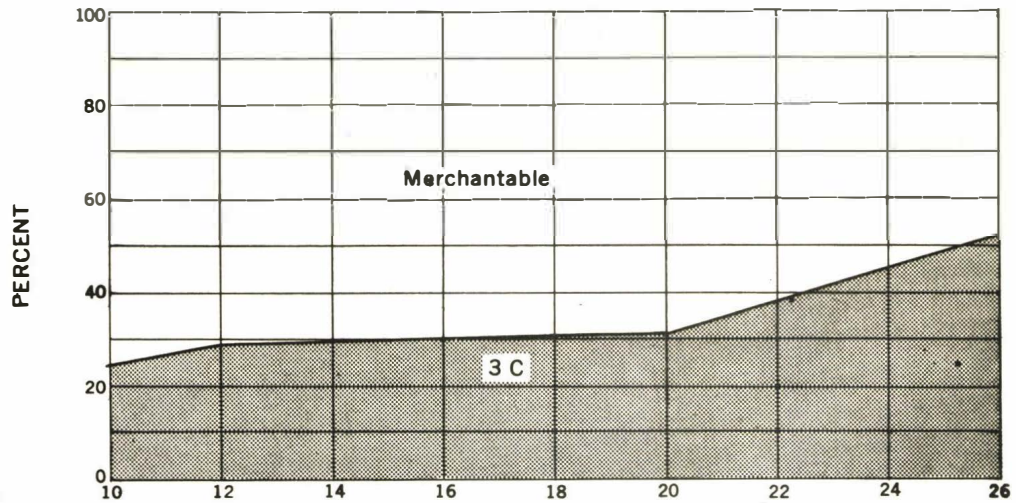
The findings presented here are based on a study made by the Northeastern Forest Experiment Station at the Otsego Forest Products Cooperative Association's mill in Cooperstown, N. Y. Altogether 1,131 hardwood logs and 573 hemlock logs were measured, and a tally was made of their lumber yield. Species and grade composition of the hardwood logs in the sample approximated the usual run of logs at the OFPCA mill. About two-fifths were hard maple, one-fifth oak, one-sixth beech, and the remainder basswood and other species. Grade 3 hardwood logs, the lowest of four grades purchased by the Association, comprised only 5 percent of the whole volume.

Lumber grades for hardwoods as defined by the National Hardwood Lumber Association (January 1943), and for hemlock as defined by the Northern Hardwood and Hemlock Manufacturers Association (June 1941) were used. Values were based on the OPA lumber price ceilings in effect May 1, 1945. All lumber volumes and grades were taken on the green chain.

The larger hardwood logs yield a greater proportion of quality lumber



But in hemlock the reverse is often true



And, although the value of hardwood lumber increases with log diameter that of hemlock - despite greater width and thickness of boards as log size increases - may be nearly constant for all diameters.